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09/877,022	06/11/2001	Mohan Kalkunte	108339-00052	9830

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EXAMINER	
HABTE, ZEWDU	

ART UNIT	PAPER NUMBER
2661	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/877,022	Applicant(s) KALKUNTE ET AL.	
	Examiner Zewdu Habte	Art Unit 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-4* is/are allowed.

6)☒ Claim(s) *5-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 5-7, 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Perlman et al. (US 6788680).

As to claim 5, Perlman discloses a method of switching data in a network switch (col. 1, lines 16-17 and claim 1, a method of processing data in a network device, such as switch), said method comprising: receiving an incoming data packet at a first port of a switch (Fig. 8, col. 6, lines 35-40); reading a first packet portion, less than a full packet length, to determine particular packet information, said particular packet information including a source address and a destination address (col. 3, lines 50-54, a packet header 18 including a fixed portion 20 and a variable length portion 26; a fixed portion 20 includes a destination address 22 and a source address 24); obtaining an egress port or egress ports based on said particular packet information (col. 5, lines 65-67, and col. 6, lines 1-3, the fast packet processing path completes processing of the received packet, for example by forwarding the packet to an output port on the device in response to addressing information within the packet, in combination with routing tables

or other routing data structures within the device); and sending the incoming data packet to the egress port or egress ports (col. 4, lines 61-65, steps performed to process a received packet by a network device, which includes a fast and a slow packet processing path, col. 5, lines 65-67, col. 6, lines 1-3, the fast packet processing path completes processing of the received packet, by forwarding the packet to an output port on the device); wherein the incoming data packet has a flexible length header (col. 3, lines 50-67, col. 4, lines 1-4, the optional fields are used to indicate optional processing by a receiver; in the optional packet header, there are type, length, and value indicators; the value stored in the type field to indicate optional categories; a receiver could use one of these categories to determine the forwarding information, and the optional length field to have a flexible length header), the first packet portion is read from the flexible length header (col. 2, lines 38-40, says the system detects whether the received data unit includes an indication of deferrable processing such as a particular option type or flag, and col. 3, lines 55-58, the variable length options portion is used to indicate specific kinds of optional processing to be performed by a receiving device) and the particular packet information is read by shifting the information field positions to account for the flexible length of the flexible length header (col. 3, lines 50-67, col. 4, lines 1-4, the optional fields are used to indicate optional processing by a receiver; in the optional packet header, there are type, length, and value indicators; the value stored in the type field to indicate optional categories; a receiver could use one of these categories to determine the forwarding information, and the length field is used to indicate the length of the option field so the receiver could use an optional length field to have a flexible

length header, and the value field used during processing of the option field to contain a value of other data).

As to claim 6, Perlman discloses a method as recited in claim 5, wherein an amount of shifting of the information field positions is determined by reading an extended header field of the flexible length header (col. 3, lines 50-67, col. 4, lines 1-4, the optional fields are used to indicate optional processing by a receiver; in the optional packet header there is a length indicator which the examiner recognizes as the extended header field, the length indicator indicating the length of the option field; the amount of shifting is determined by reading the value of the length indicator in the optional header field, as the examiner understands it).

As to claim 7, Perlman discloses a method as recited in claim 5, wherein the step of receiving the incoming data packet at the first port comprises receiving the incoming data packet at an interconnect port interface, where the interconnect port interface provides communication with ports of at least one other stack-linked network switch (col. 6, lines 28-30, an inter-port communication system 104, which may include a shared bus, shared memory, and cross-connect switching system that allows packets to be moved between the ports 102), and the flexible length header of the incoming data packet contains an opcode used to identify a packet type, the method further comprises the step of forwarding the incoming data packet based on the opcode (col. 3, lines 50-67, col. 4, lines 1-4, the optional fields are used to indicate optional processing by a receiver; in the optional packet header, there are type, length, and value indicators, the

type field to indicate an option category; the data packet is forwarded according to this options categories).

As to claim 9, Perlman discloses a network switch (Fig. 8 @100) comprising: means for receiving an incoming data packet at a first port of the switch (Fig. 8 @102a); means for reading a first packet portion, less than a full packet length, to determine particular packet information, said particular packet information including a source address and a destination address (col. 3, lines 50-54, a packet header 18 including a fixed portion 20 and a variable length portion 26; a fixed portion 20 includes a destination address 22 and a source address 24); means for obtaining an egress port or egress ports based on said particular packet information (col. 5, lines 65-67 and col. 6, lines 1-3, a network device having a fast received packet processing path, the "fast path", as well as a slower receiving packet processing path, the "slow path"); and means for sending the incoming data packet to the egress port or egress ports (col. 4, lines 61-65, steps performed to process a received packet by a network device, which includes a fast and a slow packet processing path, col. 5, lines 65-68, col. 6, lions 1-3, the fast packet processing path completes processing of the received packet, by forwarding the packet to an output port on the device); wherein the incoming data packet has a flexible length header (col. 3, lines 50-67, col. 4, lines 1-4, the optional fields are used to indicate optional processing by a receiver; in the optional packet header, there are type, length, and value indicators; the value stored in the type field to indicate optional categories; a receiver could use one of these categories to determine the forwarding information, and the optional length field to have a flexible length

header), the first packet portion is read by the means for reading from the flexible length header (col. 2, lines 38-40, says the system detects whether the received data unit includes an indication of deferrable processing such as a particular option type or flag, and col. 3, lines 55-58, the variable length options portion is used to indicate specific kinds of optional processing to be performed by a receiving device) and the particular packet information is read by the means for reading by shifting the information field positions to account for the flexible length of the flexible length header (col. 3, lines 50-67, col. 4, lines 1-4, the optional fields are used to indicate optional processing by a receiver; in the optional packet header, there are type, length, and value indicators; the value stored in the type field to indicate optional categories; a receiver could use one of these categories to determine the forwarding information, and the length field is used to indicate the length of the option field so the receiver could use an optional length field to have a flexible length header, and the value field used during processing of the option field to contain a value of other data).

As to claim 10, Perlman discloses a network switch as recited in claim 9, wherein an amount of shifting of the information field positions by the means for obtaining an egress port or egress ports is determined by reading an extended header field of the flexible length header (col. 3, lines 50-67, col. 4, lines 1-4, the optional fields are used to indicate optional processing by a receiver; in the optional packet header, there are type, length, and value indicators, the length indicator indicating the length of the option field).

As to claim 11, Perlman discloses a network switch as recited in claim 9, wherein the means for receiving the incoming data packet at the first port comprises means for

receiving the incoming data packet at an interconnect port interface, where the interconnect port interface provides communication with ports of at least one other stack-linked network switch (col. 6, lines 28-30, a means to an inter-port communication system 104, which may include a shared bus, shared memory, and cross-connect switching system that allows packets to be moved between the ports 102), and the flexible length header of the incoming data packet contains an opcode used to identify a packet type, the switch further comprises the means for forwarding the incoming data packet based on the opcode (col. 3, lines 50-67, col. 4, lines 1-4, the optional fields are used to indicate optional processing by a receiver; in the optional packet header, there are type, length, and value indicators, the type field to indicate an option category; the data packet is forwarded according this options categories).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perlman as applied to claim 5 above, and further in view of Sun et al (US 6574194).

As to claim 8, Perlman does not specifically teach a method as recited in claim 7, wherein said..., but Sun teaches an opcode identifies whether the incoming data packet is a unicast packet, a multicast packet, a broadcast packet or resulted in a destination lookup failure (col. 4, lines 36-42, by examining the first few bits of the packet, as the examiner understands the first few bits, these are the optional fields mentioned in claim 7, the receiving port can detect if an arrived message is a unicast packet or a broadcast packet; other functions a port may perform include a verification of a received packet to ensure that the packet is non-corrupted, the examiner is giving the same value to the destination lookup failure and ensuring the packet is non-corrupted; col. 7, lines 8-12, upon detecting the first few bits of the packet, the port sends a request that may also include information about the nature of the packet; a unicast packet versus a multicast packet or a broadcast packet). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Perlman with Sun for the purpose of identifying the arrived packets. The motivation is to have a network switch that identifies a packet type at a port in order to determine if the received packet is for unicast, the destination address information is explicitly expressed; if the received packet is for multicast, the destination address information may comprise multiple addresses; and if the received packet is for broadcast, the destination address information may not have explicit address.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perlman as applied to claim 9 above, and further in view of Sun et al (US 6574194).

As to claim 12, Perlman does not specifically teach a network switch as recited in claim 11, wherein said..., but Sun teaches an opcode identifies whether the incoming data packet is a unicast packet, a multicast packet, a broadcast packet or resulted in a destination lookup failure (col. 4, lines 36-42, by examining the first few bits of the packet, the examiner understands the first few bits are the optional fields mentioned in claim 7, the receiving port can detect if an arrived message is a unicast packet or a broadcast packet; other functions a port may perform include a verification of a received packet to ensure that the packet is non-corrupted, the examiner is giving the same value to the destination lookup failure and ensuring the packet is non-corrupted; col. 7, lines 8-12, upon detecting the first few bits of the packet, the port sends, a request may also include information about the nature of the packet, a unicast packet versus a multicast packet or a broadcast packet). The motivation is to have a network switch that identifies a packet type at a port in order to determine if the received packet is for unicast, the destination address information is explicitly expressed; if the received packet is for multicast, the destination address information may comprise multiple addresses; and if the received packet is for broadcast, the destination address information may not have explicit address.

Allowable Subject Matter

Claims 1-4 allowed.

Claim 1 is allowable because the prior art of record fails to teach, in combination with other claim limitations.

A network switch for network communications, said network switch comprising:

...

a plurality of lookup tables, said lookup tables including an address resolution lookup table and a VLAN table,

wherein one of said first data port interface and said second data port interface is configured to determine forwarding information from a flexible length header for an incoming data packet received at a port of said one of said first data port interface and said second data port interface, and is configured to determine the forwarding information by shifting the information field positions read from the flexible length header.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zewdu Habte whose telephone number is 571-272-3115. The examiner can normally be reached between 8:30-5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zewdu Habte
10/18/04

KENNETH VANDERPUYE
PRIMARY EXAMINER